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By Karl V. Krombein
Chairman, Department of Entomology

Hylomesa differs from its closest relative, *Mesa* Saussure, in a number of characters of generic significance, the most important of which reflect a change in prey preferences from soil-inhabiting scarabaeid larvae to wood-boring cerambycid larvae. The porrect, quadrate head and generally more slender body of the female are obvious adaptations for traversing the narrow tunnels of wood-boring beetle larvae; one is reminded of similar head and body shape in such bethylid genera as *Scleroderma* and *Nesepyris*, which also parasitize wood-boring beetle larvae. The stout, slightly curved mandibles of *Hylomesa* with an inner subapical tooth are adapted for chewing through wood

[1] Previous parts of this same series are: I, Krombein, 1937, Ann. Ent. Soc. America, vol. 30, pp. 26–30; II, Krombein, 1938, Trans. American Ent. Soc., vol. 64, pp. 227–292; III, Krombein, 1938, Ann. Ent. Soc. America, vol. 31, pp. 59–60; IV, Krombein, 1940, Trans. American Ent. Soc., vol. 65, pp. 415–465; V, Krombein, 1942, Rev. Ent., vol. 13, pp. 308–353; VI, Mickel and Krombein, 1942, American Midl. Nat., vol. 28, pp. 648–679; VII, Krombein, 1949, Proc. Ent. Soc. Washington, vol. 51, pp. 45–73; VIII, Allen and Krombein, 1961, Trans. American Ent. Soc., vol. 87, pp. 57–66; IX, Allen and Krombein, 1964, Trans. American Ent. Soc., vol. 89, pp. 211–275.

to get to its prey; these contrast markedly with the broad but thin, sickle-shaped mandibles without subapical tooth of *Mesa* that are adapted for tunneling through soil. Likewise, the legs of *Hylomesa* are much less spinose than in *Mesa*, a reflection of the different kind of substrate through which the latter has to tunnel to reach its prey.

The presence of transverse ridges anteriorly on the pronotal disk and the disk of the first abdominal tergum also serve to distinguish both sexes of most species of *Hylomesa* from *Mesa*; these modifications serve no apparent functional purpose. Other distinguishing characters of *Hylomesa* are: the lack of a closely striate pygidial area in the female, the shorter male antennae, the lack of an apical notch on the last abdominal tergum of the male, and the carinate hind coxa of the male.

Mesa, with its numerous species, has a relatively broad distribution in the Ethiopian and Oriental Regions, occasionally penetrating the southern Palaearctic Region. *Hylomesa* has a much more restricted distribution; its few species occur in Gabun, Uganda, Ceylon, India, Assam, Malaysia, Borneo, Java, Sumbawa, and the Philippines. The few detailed label data suggest that *Hylomesa* is restricted to tropical forested areas at moderate altitudes, whereas *Mesa* is primarily a genus of open lands, both tropical and temperate.

Twenty-five years ago I set aside the National Museum specimens as a genus discrete from any Myzininae treated in my earlier publication on the genera of this subfamily (Krombein, 1937). I delayed erecting a new genus, however, because of uncertainty as to the status of *Poecilotiphia* Cameron and also because of the desirability of studying the primary types of all of the taxa referable to this supposed new genus.

Poecilotiphia was based on the Indian species *albomaculata* Cameron, known originally only from a male. Cameron's generic and specific descriptions did not agree well with any species in my supposed new genus. His descriptive work, however, is so notoriously poor that uncertainty still existed particularly because of some of Turner's remarks. The latter author (1908b, p. 131) suggested that *Methocha rugosa* Cameron and *Myzine dimidiaticornis* Bingham, both based on males, were allied closely to *Poecilotiphia*. Later, Turner (1909, p. 480) sank *Poecilotiphia* as a synonym of *Myzine* Latreille, but he associated female *apimacula* Cameron as the opposite sex of *albomaculata*. He stated further that *apimacula* differed from most *Plesia* in the feebly sculptured last abdominal tergum, agreeing in this detail with the peculiar female, *Myzine tricolor* Smith, which I assigned to my supposed new genus.

I was able to resolve the application of names satisfactorily when I studied types in the collections of the British Museum and Oxford

University during the summer of 1965. *Poecilotiphia albomaculata* Cameron belongs to the Myzininae, but it is either a synonym of *Meria* Illiger or a good genus closely allied to *Meria*. *Myzine apimacula* Cameron is a species of *Mesa* and certainly cannot be the opposite sex of *albomaculata*. *Methocha rugosa* Cameron from Ceylon is colored similarly to the species I assign to *Hylomesa*, but it is definitely a member of the Methochinae, not of the Myzininae as suggested by Turner. The only previously described taxa referable to what I describe here as *Hylomesa* are: *Myzine tricolor* Smith (1858), *Myzine dimidiaticornis* Bingham (1896), *Elis* (*Mesa*) *crassepunctata* Turner (1914), *Elis* (*Mesa*) *ugandensis* Turner (1918), *Elis* (*Mesa*) *tricolor longiceps* Turner (1918), and *Elis* (*Mesa*) *tricolor shuckardi* Turner (1918).

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Mrs. Elsie H. Froeschner made the habitus illustrations that accompany this article, and Mr. André Pizzini made the genitalia figures.

Hylomesa, new genus

Type-species: *Myzine tricolor* Smith, 1858.

FEMALE.—Head porrect, more or less quadrate as viewed from above; eye comparatively smaller than in *Mesa*, touching base of mandible, inner margin shallowly and broadly emarginate; mandible stout, slightly curved, with a stout subapical tooth on inner margin that is smaller than the apical tooth, groove parallel to outer margin bearing a series of long, stiff hairs and a short median groove bearing shorter hairs, no groove parallel to inner margin; antennae arising from beneath frontal lobes, pedicel concealed in recessed apex of scape, thus antennae apparently 11-segmented; ocelli small, three in number; clypeus broad and narrow, median keel weak to strongly produced, the apical margin with a small rounded lobe on each side, the median lobe broadly rounded and usually with a pair of small,

close teeth; occipital carina complete dorsally; maxillary palpus 6-segmented, labial palpus 4-segmented.

Thorax narrower than in *Mesa*, considerably longer than broad; pronotum comparatively longer than in *Mesa*, the anterior portion abruptly declivous and separated from posterior horizontal disk by a ridge, the posterior margin arcuate; scutum slightly shorter than pronotal disk, with notauli and parapsidal furrows present on posterior three-fourths; scutellum slightly longer than scutum; postscutellum a narrow curved sclerite; mesopleuron bulging; metapleuron flat, reduced; propodeum with distinctly differentiated dorsal, posterior, and lateral surfaces, dorsum with a narrow, elongate, median cuneate impression, lateral surface with close, weak, oblique ridges.

Abdomen relatively broad, flattened, 6-segmented; disk of first tergum ridged anteriorly; pygidial area shagreened or polished at apex, not closely longitudinally striate as in *Mesa*.

Wings extending to about apex of fourth abdominal tergum; marginal cell with outer half of anterior margin removed from wing edge, the apex acute, not narrowly rounded as in *Mesa*, three submarginal cells, the second and third each receiving a recurrent nervure; in hind wing cubitus arises beyond transverse median nervure.

Legs relatively short and stout, much less spinose than in *Mesa;* outer surface of mid- and hind tibiae with weaker, more separated, prickle-like spines than in *Mesa;* longer spur of hind tibia with posterior margin rounded, not toothed; tarsal claws cleft; foretarsal rake weaker than in *Mesa*.

Color black, abdomen usually with strong blue reflections; head red; wings strongly infumated.

MALE.—Head not porrect as in female, but much better developed behind eyes than in *Mesa;* eye comparatively smaller than but shaped as in *Mesa*, less strongly reniform than in *Myzinum*, touching base of mandible; the latter similar to that of female but weaker, not strongly curved as in *Mesa;* antennae arising from beneath frontal lobes, apparently 12-segmented, pedicel mostly concealed in recessed apex of scape, much shorter than in *Mesa*, most segments less than twice as long as broad; ocelli three in number, small; clypeus much as in female but median keel weaker and never strongly produced; maxillary palpus 6-segmented, labial palpus 4-segmented.

Thorax longer than broad; pronotal disk about as long as broad, the sides slightly converging anteriorly, a strong ridge between disk and abruptly declivous anterior portion of pronotum; scutum shorter than pronotal disk, notauli and parapsidal furrows well-developed on posterior three-fourths; scutellum as long as scutum; mesopleuron not so strongly bulging as in female, without an anterior ridge and not produced anteriorly in middle; propodeum with ridge between dorsal

and posterior surfaces, lateral surface pitted as are the dorsal and posterior.

Abdomen slender, 7-segmented; disk of first tergum ridged anteriorly; last dorsal segment convex, without differentiated pygidial area, its apex not notched for reception of the recurved hypopygial aculeus as in *Mesa*.

Genitalia very similar in conformation to those of *Mesa* except that the lamina volsellaris is much better developed, extending to or almost to apex of cuspis volsellaris.

Wings reaching nearly to apex of abdomen; anterior margin of marginal cell confluent anteriorly with costal margin of wing, narrowly rounded apically; three submarginal cells, the second and third each receiving a recurrent nervure; cubitus in hind wing arising before transverse median nervure.

Legs rather short, mid- and hind tibiae lacking the scattered spines found in *Mesa;* hind coxa carinate along inner margin above; tarsal claws cleft.

Color as in female, but basal flagellar segments of antenna usually red, and wings frequently less infumated.

Key to Species and Subspecies of *Hylomesa*

(The males are unknown in *t. tricolor* and *ugandensis;* females are unknown in *crassepunctata* and *dimidiaticornis*.)

1. Females; abdomen with six visible segments, antenna apparently only 11-segmented because of the nearly entirely recessed pedicel 2
   Males; abdomen with seven visible segments, antenna apparently only 12-segmented because of the recessed pedicel 7
2. Apex of hind tibia on inner surface with four stout, short, flattened setae; distance between hypostomal and occipital carinae only half the length of hypostoma 3
   Apex of hind tibia without such setae; distance between hypostomal and occipital carinae subequal to length of hypostoma 5
3. Posterolateral angle of head angulate beneath; clypeal keel very strongly produced, nasiform as viewed from side; inferior margin of hind femur obtusely angulate at middle; Borneo, Sumbawa, Burma.
   shuckardi (Turner)
   Posterolateral angle of head rounded beneath; clypeal keel distinct but not so produced; inferior margin of hind femur rounded . . **tricolor** (Smith) . 4
4. Clypeal keel rather weak, present only on basal two-thirds; median teeth on clypeal margin weaker; pronotal ridge weaker, the disk with more dispersed punctures; anterior ridge on first tergum weaker; Borneo.
   tricolor tricolor (Smith)
   Clypeal keel stronger, complete, terminating on apical third in an inverted U-shaped carina the arms of which extend to the strong marginal teeth; pronotal ridge stronger, the punctures more crowded on anterior half of disk; anterior ridge on first tergum stronger; Java.
   tricolor lieftincki, new subspecies

5. Inferior margin of hind femur sharply right-angled at middle; apical fourth of sixth tergum polished and impunctate; mesopleural disk only slightly or not at all produced in middle; comparatively more sparsely punctate species, most of pronotal disk with punctures small and separated by one or more times the diameter of a puncture; anterior ocellus closer to occiput than to apices of antennal tubercles; ocellocular distance 0.50–0.58 times the ocelloccipital distance 6

Inferior margin of hind femur obtusely angulate in middle; apical fourth of sixth tergum shagreened and impunctate; mesopleural disk produced anteriorly in middle so that it overhangs the concave anterior face; comparatively a more densely punctate species, most of punctures on anterior half of pronotal disk coarse, subcontiguous and separated by less than the diameter of a puncture; ocellocular distance 0.42–0.44 times the ocelloccipital distance; anterior ocellus closer to apices of antennal tubercles than to occiput; Ceylon, India, Burma, Malaysia, and Philippines.
longiceps (Turner)

6. Anterior margin of pronotum not ridged; first tergum not transversely ridged anteriorly; mesopleural disk slightly produced anteriorly in middle; distance from apex of antennal insertions to occiput 0.83–0.93 times the width across eyes; Uganda and Gabun . . . . . **ugandensis** (Turner)

Pronotal disk and disk of first abdominal tergum each with a strong transverse ridge anteriorly; mesopleural disk not produced anteriorly; distance from apex of antennal insertions to occiput 0.94–1.0 times the width across eyes; Philippines . . . . . **bakeri,** new species

7. Intermediate flagellar segments with length and width subequal; ocellocular and ocelloccipital distances subequal; pronotal disk anteriorly with one weak, transverse ridge; head and pronotum red; South India.
crassepunctata (Turner)

Intermediate flagellar segments with length 1.2–1.5 times the width; ocellocular distance 0.6–0.7 times the ocelloccipital distance; pronotal disk anteriorly either with a single strong ridge or with three weak ridges; head usually red, pronotum always black 8

8. Sterna 5–6 each with the posterior area clothed with dense, short, velvety vestiture; pronotal disk anteriorly with three weak transverse ridges; ocellocular distance 1.5 times the postocellar distance; metapleuron above with close coarse ridges; genitalia with inner surface of squama and cuspis volsellaris densely setose, cuspis vosellaris digitate at apex; India, Burma.
dimidiaticornis (Bingham)

None of sterna with velvety vestiture; pronotal disk anteriorly with a single strong transverse ridge 9

9. Small (11 mm long), quite sparsely punctate species; pronotal disk with almost all of punctures separated by one or more times the diameter of a puncture; sterna 3–5 with very sparse, scattered hairs; ocellocular distance 1.6 times the postocellar distance; genitalia with inner surface of squama and cuspis volsellaris not densely setose, apex of cuspis volsellaris digitate; Philippines . . . . . **bakeri,** new species

Larger (12–17 mm long), more closely punctate species; pronotal disk with many of punctures contiguous or separated by less than the diameter of a puncture; sterna 3–5 each with short, erect, moderately dense vestiture on apical half; ocellocular distance 1.9–2.8 times the postocellar distance. 10

10. Clypeal keel complete, terminating on apical third in an inverted U-shaped carina the arms of which extend to the very strong marginal teeth; meta-

pleuron strongly and closely ridged on upper half; genitalia with inner surface of squama and cuspis volsellaris densely setose, cuspis volsellaris digitate at apex; Java . . . . . **tricolor lieftincki,** new subspecies

Clypeal keel simple, present only on basal three-fourths, the marginal clypeal teeth absent or weaker; metapleuron on upper half smooth or with fine, close ridges only 11

11. Distance between hypostomal and occipital carinae about half the hypostomal length; clypeal teeth lacking, the apical margin rounded out in middle; flagellum entirely black; genitalia with inner surface of squama and cuspis volsellaris not densely setose, cuspis volsellaris very slender and curved, lamina volsellaris on ventral margin with three long, stout setae, paramere with a small blunt tubercle on inner ventral surface halfway to apex; Borneo, Sumbawa, Borneo . . . . . **shuckardi** (Turner)

Distance between hypostomal and occipital carinae subequal to hypostomal length; median clypeal teeth moderately developed, the apical margin shallowly emarginate between teeth; two or more of basal flagellar segments red; genitalia with inner surface of squama and cuspis volsellaris densely setose, cuspis volsellaris broad and truncate at apex, lamina volsellaris with fine setae only, paramere without tubercle; Ceylon, India, Burma, Malaysia, and Philippines, but apparently not Borneo . **longiceps** (Turner)

Hylomesa tricolor tricolor (Smith), new combination

PLATE 1 (FIGS. 3, 7)

Myzine tricolor Smith, 1858, p. 91.—Dalla Torre, 1897, p. 128.

Smith described tricolor from a unique female from "Borneo (Sarawak)" that I have examined in the collection of the Hope Museum at Oxford University. Most of the subsequently published references to *tricolor* actually are referable to *shuckardi* (Turner) except for that cited above from Dalla Torre's catalog. The misidentifications were based on a female of *shuckardi* from Borneo in the British Museum collection misidentified as *tricolor* and considered erroneously to be the type of Smith's species.

Hylomesa tricolor and *H. shuckardi* are the only Oriental species in which the females have the hind tibia armed apically on the inner surface with four short, flattened setae. Also, they are the only known *Hylomesa* from Borneo. The rounded posterolateral angles of the head beneath, the lack of a median clypeal process, and the rounded median angle of the posterior margin of the hind femur readily distinguish *tricolor* from *shuckardi*. The genitalic characters separating the males are the densely setose inner surfaces of the squama and cuspis volsellaris of *tricolor lieftincki* as contrasted to the very sparsely setose condition of these parts in *shuckardi*, and the different conformation of the parts.

There are two races of *tricolor*, the typical one from Borneo, and *H. t. lieftincki*, new subspecies, from Java. In the Bornean race the median teeth on the apical border of the clypeus are weaker as is

the median carina that terminates about two-thirds of the distance to the apical margin.

FEMALE.—Length 16–22, forewing 10–13 mm. Head red except tip of mandible, antenna, and hypostomal area; thorax, legs, and abdomen black, the latter with blue reflections; wings moderately infumated, more strongly so on outer two-thirds of forewing, and with violaceous reflections.

Head from above with length (apex of antennal insertions to occiput) about five-sixths (0.83–0.84) the width across eyes; clypeal keel weak, present only on upper two-thirds, the median teeth on apical margin also weak; median sulcus on front extending halfway to anterior ocellus; lower half of front with coarse, contiguous punctures arranged in longitudinal rows, the upper half with scattered coarse punctures; vertex punctured about as upper half of front; ocellocular distance 2.78–2.88 times the postocellar distance and 0.55–0.67 times the ocelloccipital distance; anterior ocellus about as close to apices of antennal tubercles as to occiput; head beneath with posterolateral angles rounded; distance between occipital and hypostomal carinae about half the length of hypostomal area.

Anterior margin of pronotal disk with a strong ridge, anterior half of disk with coarse, subconfluent punctures arranged in longitudinal rows, the posterior half with more scattered smaller punctures; scutum with moderately large, subconfluent punctures except posteriorly in middle, where they are confluent; scutellum with punctures more evenly distributed; mesopleural disk produced anteriorly in middle beyond concave anterior face of sclerite, the punctures mostly coarse and mostly separated by less than the diameter of a puncture, slightly sparser than in *shuckardi;* punctures adjacent to cuneate space on dorsum of propodeum small, more closely grouped there than on anterior two-thirds of disk, and with larger, subconfluent pits posteriorly and posterolaterally; posterior propodeal surface with coarse pits that are confluent in irregular, transverse rows, and with the rows separated from each other by about twice the diameter of a pit.

Disk of first tergum weakly ridged anteriorly; last tergum shagreened at extreme apex.

Inferior margin of hind femur rounded at middle; hind tibia at apex on inner surface with four short, flattened setae.

MALE.—Unknown.

SPECIMENS EXAMINED.—1 ♀, Sar. [Sarawak] (HMOU, the holotype). 2 ♀, Sandakan, Borneo (USNM, Baker Collection).

***Hylomesa tricolor lieftincki*, new subspecies**

FIGURE 4; PLATE 1 (FIG. 4)

Females of this Javan race differ from those of typical *tricolor* in having stronger clypeal teeth, in the stronger clypeal keel terminating below in an inverted U-shaped carina, and in being comparatively more strongly punctate or sculptured in certain features as detailed in the description below.

The male associated here with *tricolor lieftincki* females was also taken on Java, though in a different locality. The sex association is believed to be correct because the male also has a strongly developed clypeal keel terminating below in an inverted U-shaped carina; in this feature it differs from any other *Hylomesa* males known to me.

FEMALE.—Length 21.5, forewing 14 mm. Color as in typical *tricolor* except blue reflections on abdomen evanescent.

Head from above with length (apex of antennal insertions to occiput) 0.85 times the width across eyes; clypeal keel stronger than in typical *tricolor*, terminating below in an inverted U-shaped carina, the arms of which extend to the pair of strong median teeth on the apical margin; punctation as in typical *tricolor;* ocellocular distance 2.64 times the postocellar distance and 0.52 times the ocelloccipital distance.

Pronotal ridge somewhat stronger than in typical *tricolor*, and punctures more crowded on anterior half of disk; punctures also more crowded on posterior surface of propodeum.

Ridge on first tergum stronger than in typical *tricolor*.

MALE.—Length 15, forewing 11 mm. Color as in female except abdomen with strong blue reflections and forewing less strongly infumated.

Clypeal keel strong, terminating below in a high, inverted U-shaped carina whose arms form a sharp tooth as viewed from side; distance from apex of frontal platform to occiput 0.88 times the head width across eyes; front with coarse, subcontiguous punctures, the median furrow obsolete; ocellocular distance 2.63 times the postocellar distance and 0.70 times the ocelloccipital distance; occipital carina very weak dorsally; median flagellar segments 1.25 times as long as wide.

Pronotal disk with a strong ridge anteriorly, immediately behind which on anterior third are several rows of punctures subcontiguous in irregular transverse rows, elsewhere on disk the punctures very sparse and small; scutum with coarse pits on most of disk, slightly separated except posteriorly in middle, where they are contiguous; scutellum with coarse, very crowded, larger pits; mesopleural disk

with coarse, subcontiguous pits on upper two-thirds; metapleuron with close parallel ridges above; dorsal propodeal surface with a narrow, median channel, laterad of this a strip of small contiguous pits, and further laterad with scattered pits; lateral propodeal surface with moderate-sized, crowded pits; posterior surface ridged above and with mostly contiguous pits.

First tergum moderately ridged anteriorly, behind which is a row of confluent punctures, sparsely punctate elsewhere; terga each with an apical row of stronger setae than in other species except *shuckardi;* sterna 3–6 with short, erect, moderately dense vestiture.

Genitalia with inner surface of squama and cuspis volsellaris densely setose, cuspis volsellaris digitate at apex; lamina volsellaris with relatively fine setae only; paramere without tubercle on inner ventral surface halfway to apex.

HOLOTYPE.—♀, Mt. Semeroe, R. Daroengan, southeast Java, 800 meters elev., 6–13 June 1941, M. A. Lieftinck (RNH).

ALLOTYPE.—♂, K. O. Blawan, Idjen Plateau, Java, 900–1500 meters elev., 25 April 1936, H. Lucht (RNH).

PARATYPES.—4 ♀, same data as type (RNH, USNM). 1 ♀, Java, Muller (RNH).

Female paratypes are 18–21 mm long and are very similar to the type in all essential details; the ocellocular distance is 2.3–3.0 times the postocellar distance and 0.54–0.62 times the ocelloccipital distance. One paratype bears a label stating that eight examples were taken on flowers of Araliaceae in a dense forest; only five of these are before me.

Hylomesa shuckardi (Turner), new combination

FIGURE 5; PLATE 1 (FIGS. 2, 6)

Myzine tricolor Smith.—Bingham, 1897, in part, p. 66 [the specimen from Borneo].
Elis (*Mesa*) *tricolor* (Smith).—Turner, 1912, in part, p. 720 [the specimen from Borneo].
Elis (*Mesa*) *tricolor tricolor* (Smith).—Turner, 1918, pp. 87–88 [the specimen from Borneo].
Elis (*Mesa*) *tricolor shuckardi* Turner, 1918, pp. 87–88.
Mesa tricolor (Smith).—Guiglia, 1965, p. 316.

Turner's interpretation of this species is exceptionally misleading. He stated that in *tricolor shuckardi* the clypeus was "depressed in the middle" and not carinate, failing to note that part of the clypeus, including the median process, had been broken off when someone extended the mandible. The flattened exposed labrum beneath thus gives the clypeus the superficial appearance of being depressed and unarmed.

Actually the female of *shuckardi* is the most easily distinguished of the several species of *Hylomesa*. In other species the clypeus has

a median keel that is not raised into a process; in *shuckardi* the keel is produced into a process that is nasiform as viewed in profile. Also, *shuckardi* has the lateroventral part of the head angulate beneath, whereas this area is rounded in the other species.

Turner stated that his unique type in the British Museum was from "India (probably the South or West), ex coll. Shuckard." The locality label, however, a round disk, bears only "Ind." on one side and "63/81" on the other. J. F. Perkins of the British Museum staff advised me that the registry entry for 63/81 is "18 Myzine—Africa, India and Brazil. Purchased of E. W. Janson. From the collection of E. W. Shuckard." The more explicit label data on the other specimens of *shuckardi* before me suggest that "Ind." actually may stand for Indies rather than India.

FEMALE.—Length 14–20, forewing 10–13 mm. Black, the head red except tip of mandible, hypostomal area, and antenna, the abdomen with bluish reflections; forewing moderately infumated except basal third very lightly so, the darkened portion with violaceous reflections.

Head from above with length (apex of antennal insertions to occiput) about four-fifths (0.78–0.82) the width across eyes; clypeal keel produced into a nasiform process as viewed laterally; median lobe of clypeus broadly rounded, with a pair of separated median teeth, weak except in the specimen from Marang; front with a median sulcus extending from antennal insertions halfway to anterior ocellus, and with moderately large punctures confluent in vertical rows from insertions two-thirds of distance to anterior ocellus; remainder of front with smaller, scattered, shallow punctures; vertex with more scattered punctures except behind eye, where they are denser; ocellocular distance 2.33–2.70 times the postocellar distance and 0.52–0.61 times the ocelloccipital distance; anterior ocellus closer to apices of antennal tubercles than to occiput; head beneath angulate posterolaterally; distance between occipital and hypostomal carinae about half the length of hypostomal area.

Anterior margin of pronotal disk with a strong ridge, behind which are coarse punctures more or less confluent in longitudinal rows on anterior half, the posterior half with more scattered and smaller punctures; side of pronotum with coarse, more or less confluent punctures; scutum with moderately large, subconfluent punctures except posteriorly in middle, where they are confluent; scutellum with punctures of same size, confluent in a row laterally and in several rows medianly; mesopleural disk produced anteriorly in middle beyond concave anterior part of sclerite, the discal punctures coarse and mostly separated by less than the diameter of a puncture; upper surface of propodeum with small confluent punctures adjacent to median cuneate impression, larger pits posteriorly, and scattered

punctures elsewhere; posterior surface with coarse, close pits laterally becoming smaller and more separated toward midline; lateral surface with close oblique rugae.

Disk of first tergum weakly ridged anteriorly; last tergum shagreened at apex, somewhat shining.

Inferior margin of hind femur obtusely angulate at middle; hind tibia at apex on inner surface with four short, flattened setae.

MALE (hitherto unrecognized).—Length 13, forewing 9 mm. Color as in female.

Clypeal keel stronger than in other *Hylomesa* except *tricolor lieftincki*, not protruding in middle into a nasiform process as in female; clypeal teeth lacking; distance from apex of frontal platform to occiput 0.89 times the head width across eyes; front with coarse, contiguous punctures, median furrow strongly impressed on basal half; ocellocular distance 2.1 times the postocellar distance and 0.65 times the ocell-occipital distance; occipital carina indistinct above in middle; distance between hypostomal and occipital carinae about half the hypostomal length; median flagellar segments 1.2 times as long as wide.

Pronotal disk with a strong anterior ridge, behind this on anterior third with moderately coarse and subcontiguous punctures that form irregular transverse rows; scutum with coarse pits on most of disk, slightly separated except posteriorly in middle, where they are contiguous; scutellum with coarse, very crowded larger pits; mesopleural disk with coarse, subcontiguous pits on upper two-thirds; metapleuron above with very fine, close ridges; propodeal dorsum with a narrow median channel, laterad of which are coarse, contiguous pits; lateral and posterior surfaces similarly pitted.

First tergum slightly more strongly ridged anteriorly than in *tricolor lieftincki;* sterna 3–6 with short, erect moderately dense vestiture.

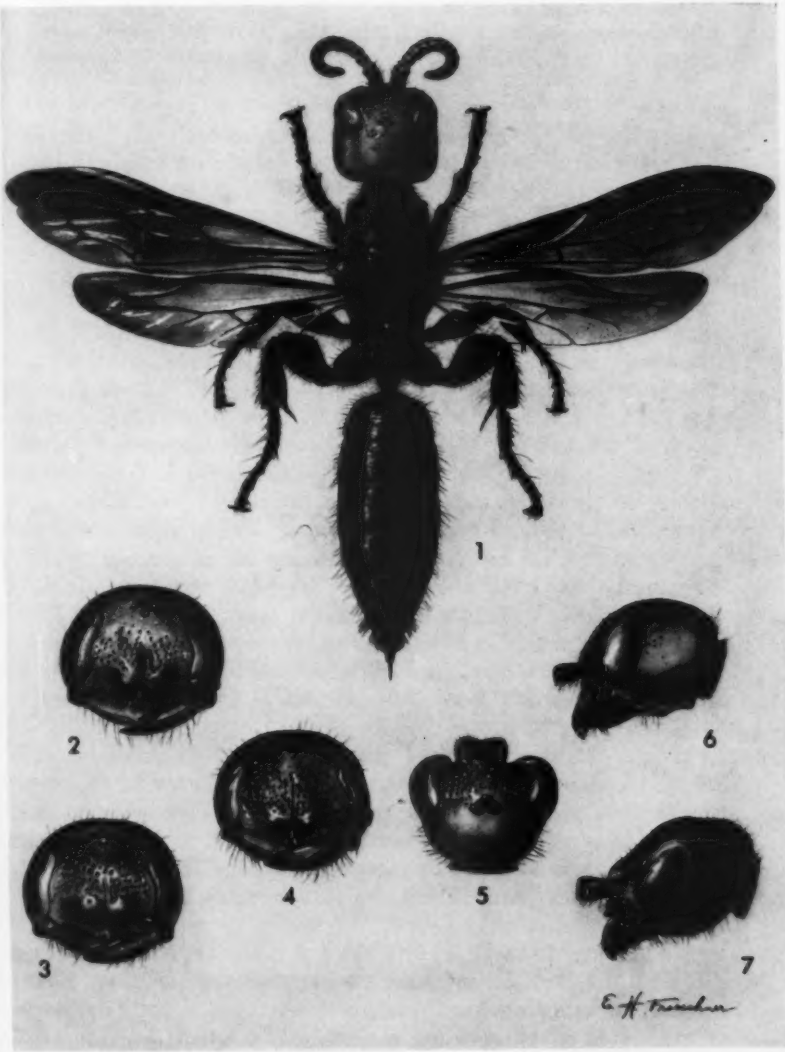
Genitalia with inner surface of squama and cuspis volsellaris not densely setose; cuspis volsellaris very slender and curved; lamina volsellaris on ventral margin with three long, stout setae; paramere with a small blunt tubercle on inner ventral surface halfway to apex.

SPECIMENS EXAMINED.—1 ♀, Ind, 63/81 (BMNH, the holotype). 1 ♀, Borneo (BMNH, determined as *Myzine tricolor* and thought erroneously to be the holotype of *tricolor* Smith. 1 ♀, Borneo, 1909, C. J. Brooks (BMNH). 1 ♀, Midden, O-Borneo, 28 August 1925, H. C. Siebers (RNH). 1 ♂, Bandjermas, Borneo (MCSN, Gribodo Collection). 1 ♀, Marang, Burma (MCSN, Gribodo Collection). 1 ♀, Sumbawa Island (MCSN, Gribodo Collection).

***Hylomesa longiceps* (Turner), new combination**

FIGURE 1; PLATE 1 (FIG. 1)

Plesia tricolor (Smith).—Magretti, 1892, in part, pp. 258–259.—Turner 1909, in part, p. 480 [the specimen from Assam].



FIGURES 1–7.—1, *Hylomesa longiceps* (Turner), dorsal view, female, Anshi, India, × 3.6. 2, *H. shuckardi* (Turner), frontal view, female head, Marang, Burma, × 6.9. 3, *H. tricolor tricolor* (Smith), frontal view, female head, Sandakan, Borneo, × 6.2. 4, *H. tricolor lieftincki* Krombein, holotype, frontal view, female head, Mt. Semeroe, Java, × 5.3. 5, *H. dimidiaticornis* (Bingham), dorsal view, male head, Yakorubi, India, × 9.7. 6, *H. shuckardi*, lateral view, female head, Marang, × 6.9. 7, *H. tricolor tricolor*, lateral view, female head, Sandakan, × 6.2.

Myzine tricolor Smith.—Bingham, 1897, in part, p. 66 [the specimen from Assam].
Elis (*Mesa*) *tricolor* (Smith).—Turner, 1912, in part, p. 720 [the specimens from Assam and W. India].
Elis (*Mesa*) *tricolor longiceps* Turner, 1918, p. 87.—Rohwer, 1921, p. 90.
Mesa tricolor longiceps (Turner).—Guiglia, 1965, p. 315.—Baltazar, 1966, p. 207.

For many years specimens of *longiceps* were confused with *tricolor* even by Turner. The latter author eventually recognized *longiceps* as a discrete taxon at the subspecific level; however, it must certainly rank as a good species, and it is, in fact, one of the most easily recognized species of *Hylomesa*. The more elongate head of the female separates that sex immediately from females of other species except *bakeri*. The shagreened pygidium, the obtusely angulate posterior margin of the hind femur, and the much greater ocelloccipital:ocellocular ratio separate *longiceps* from *bakeri* females. The male genitalia are also quite distinctive; this sex also may be identified readily by having somewhat more elongate intermediate flagellar segments and in having the hypostomal length subequal to the distance between the hypostomal and occipital carinae.

Hylomesa longiceps is also noteworthy in that it is the most widely distributed species of the genus with definite records of capture in Ceylon, India, Assam, Burma, Malaysia, and the Philippines.

It is also the only *Hylomesa* for which we have any information on host preferences. Turner (1912) stated that T. R. Bell "informed me that he bred this species from the larva of a longicorn beetle." This statement is at variance with the label data on the only female *longiceps* bearing a Bell label: "in dead wood with longicorn larvae 14–1–07."

FEMALE.—Length 15–23, forewing 10–16 mm. Black, the head except apex of mandible and hypostomal area and occasionally the ocellar triangle, varying from light to dark red; scape, pedicel, and from one to four of basal flagellar segments also red; abdomen occasionally with metallic blue reflections; forewing entirely infumated or with basal area lighter in some specimens, the darkened area with violaceous reflections.

Head more elongate than in other species, from above with length (apex of antennal insertions to occiput) subequal (0.94–1.0) to width across eyes; in larger specimens the sides of head are somewhat rounded out behind eyes so that eyes are not so protuberant as in smaller specimens; clypeal keel weak, present only on basal half or two-thirds; clypeal margin with the median teeth weak, slightly more separated than in *shuckardi;* median frontal sulcus extending halfway to anterior ocellus; front with punctures moderate in size and contiguous or almost so; vertex with more scattered punctures on anterior third and almost impunctate on posterior two-thirds; ocellocular distance 2.17–2.43 times the postocellar distance, and 0.42–0.44 times

the ocelloccipital distance; anterior ocellus closer to apices of antennal tubercles than to occiput; head beneath with rounded posterolateral angles; distance between occipital and hypostomal carinae subequal to length of hypostomal area.

Anterior margin of pronotal disk strongly ridged, the anterior half with coarse, confluent to subconfluent punctures, arranged in longitudinal rows; scutum with subconfluent, coarse punctures except posteriorly somewhat more crowded; scutellum with punctures slightly more separated; mesopleural disk produced anteriorly in middle beyond concave anterior face of sclerite, the punctures about as in *shuckardi;* punctures small on areas adjacent to cuneate space on propodeum, the disk posteriorly and laterally with larger, subconfluent pits; posterior surface of propodeum with mostly confluent or subconfluent pits.

Disk of first tergum strongly ridged anteriorly; last tergum shagreened at apex.

Inferior margin of hind femur obtusely angulate at middle; apex of hind tibia on inner surface without heavy, flattened, short setae.

MALE.—Length 12–17, forewing 7–12 mm. Color as in female except that venter of head occasionally is all black and as many as six flagellar segments may be red.

Clypeal keel strong, present on basal two-thirds or three-fourths; median lobe of clypeus with a shallow emargination separating the two well-developed teeth; distance from apex of frontal platform to occiput 0.85–0.87 times the width across eyes; front with mostly contiguous to subcontiguous pits; vertex with smaller, more scattered punctures; ocellocular distance 1.9–2.8 times the postocellar distance, and 0.59–0.71 times the ocelloccipital distance; occipital carina weak or evanescent dorsally; median flagellar segments 1.4–1.5 times as long as wide.

Pronotal disk anteriorly with a strong ridge, behind that with weak to strong punctures, sometimes rather scattered, sometimes arranged almost contiguously in a few transverse rows; scutum and scutellum with coarse, shallow, contiguous to subcontiguous pits; mesopleural disk with very coarse, contiguous to scattered pits; metapleuron usually without ridges above, but occasionally with a few weak ridges; propodeal dorsum irregularly rugulose, the narrow median channel with a few transverse rugae, the posterior margin strongly ridged; lateral surface with a few strong rugae anteriorly, the rest of surface with coarse contiguous pits or irregularly rugulose; posterior surface varying from contiguously pitted to irregularly rugulose.

First tergum with strong transverse ridge anteriorly, the disk with scattered large punctures; sterna 3–5 with short, erect vestiture, a

bit denser than in *tricolor* but not velvety as in *dimidiaticornis* on sterna 5 and 6.

Genitalia with inner surface of squama and cuspis volsellaris densely setose; cuspis volsellaris broad and truncate at apex; lamina volsellaris with fine setae only; paramere without tubercle on inner ventral surface halfway to apex.

SPECIMENS EXAMINED.—1 ♀, Kandy, Central Prov., Ceylon, 20 November 1953, F. Keiser (NMB). 1 ♂, Inginiyagata, Uva Prov., Ceylon, 31 August 1953, F. Keiser (NMB). 1 ♀, Ceylon (TMA). 1 ♀, Anshi near Karwar, Mysore Prov., India, 14 January 1907, T. R. Bell, in dead wood with longicorn larvae (BMNH). 1 ♀, Dibrughur, Assam, August 1891, Bingham (BMNH, type of *longiceps*). 7 ♂, Schwego Myo, Burma, October 1885, L. Fea (MCSN). 8 ♀, 5 ♂, Penang, Baker (USNM). 1 ♀, Zamboanga, Mindanao, Baker (USMN). 1 ♀, Butuan, Mindanao, Baker (USNM). 2 ♀, Mt. Canalaon, 3600 ft. alt., Negros Or., 29 April and 8 May 1953, H., M., and D. Townes (HKT). 2 ♂, Cuernos Mts., Negros, Baker (USNM). 2 ♀, 1 ♂, Sibuyan, Baker (USNM). 1 ♀, 2 ♂, Samar, Baker (USNM). 3 ♀, Mt. Makiling, Luzon, Baker (USNM). 1 ♂, Baguio, Benguet, Luzon, Baker (USNM). 1 ♂, Baguio, June 1917, F. X. Williams (BPBM). 1 ♂, Baguio (USNM).

Hylomesa ugandensis (Turner), new combination

Elis (*Mesa*) *ugandensis* Turner, 1918, pp. 86–87.

This species, known at present only from the female, is distinguished from all *Hylomesa* except *bakeri* by the much sparser punctation and by the more sharply (right-angled) inferior margin of the hind femur. The lack of anterior transverse ridges on the pronotum and first tergum immediately separate *ugandensis* from *bakeri*. This species is the only known *Hylomesa* from Africa.

FEMALE.—Length 17, forewing 11 mm. Head and appendages red except tip of mandible, ventral surface of head in type (hypostoma only in Gabun specimen), ocellar triangle, and last three flagellar segments dark brown to black (type only); thorax black, tegula and legs dark castaneous except foreleg with apex of femur, all of tibia and tarsus light red in type; in Gabun specimen antenna and legs are entirely red as well as pronotum, scutum, scutellum, most of mesopleural disk, and part of lateral propodeal surface; wings entirely and strongly infumated, with bronzy reflections; abdomen black, the first two terga with bluish reflections.

Head from above with length (apex of antennal insertions to occiput) five-sixths (0.83) the greatest width (across eyes); clypeus with a moderately strong median keel, gently rounded as seen in profile, terminating just before anterior margin, the latter with a shallow

median emargination on either side of which the margin goes laterad at a right angle to a sinus just before the rounded anterolateral termination; front with a median sulcus extending half the distance to anterior ocellus and with moderately large punctures confluent to subconfluent in vertical rows from antennal insertions two-thirds of distance to anterior ocellus; remainder of front with smaller, scattered, shallow punctures; vertex more sparsely punctate than upper front; ocellocular distance 2.5–3.0 times the postocellar distance and 0.53 times the ocelloccipital distance; anterior ocellus slightly closer to occiput than to apices of antennal tubercles; head beneath rounded posterolaterally.

Pronotum with anterior margin not ridged, the disk with shallow, scattered punctures, separated by two or more times the diameter of a puncture; laterally the punctures somewhat closer except in lower posterior area, where they are confluent; scutum with somewhat larger and closer punctures, some of which are confluent in rows posteriorly in the middle; scutellum slightly longer than scutum, the punctures slightly larger and more scattered, and with a shallow, narrow median sulcus on anterior third; postscutellum with smaller contiguous punctures in middle; mesopleural disk slightly produced anteriorly beyond the concave anterior part of the sclerite, the discal punctures quite scattered except posteriorly along upper margin; metapleuron with minute, close punctures; propodeum dorsally with a shallow, median depressed area tapering gradually toward the posterior margin, laterad of this with scattered shallow punctures; posterior surface of propodeum rather densely punctate; lateral surface of propodeum with oblique rugae; hind tibia at apex on internal surface without flattened setae; inferior margin of hind femur right angled at middle.

Disk of first tergum not ridged anteriorly, with scattered small punctures as on succeeding terga; last tergum polished and with somewhat closer punctures except apical fourth impunctate.

MALE.—Unknown.

SPECIMENS EXAMINED.—1 ♀, Tero Forest, Uganda, July 1912, C. G. Gowdey (BMNH, the type). 1 ♀, Gabun, 1892 (TMA).

Hylomesa bakeri, new species

FIGURE 3

The small size and sparser punctation of both sexes readily distinguish *bakeri* from other species in the genus. In addition, the female differs from most other *Hylomesa* in the entirely polished pygidium, more sharply angled inferior margin of hind femur, and the simpler mesopleural disk, which is not extended anteriorly beyond the anterior surface of the mesopleuron. The male has the sterna with very

sparse vestiture, and the clypeal margin is rounded out in the middle, not dentate.

FEMALE.—Length 13.5, forewing 8 mm. Black, the head red except apex of mandible, hypostomal area, and flagellum, the abdomen with weak blue reflections; wings moderately infumated on outer two-thirds, the darker part with bronzy and violaceous reflections.

Head from above with length (apex of antennal insertions to occiput) subequal (0.93) to the width across eyes; clypeal keel relatively weak, present on basal half only; median lobe of anterior clypeal margin narrowly rounded, the paired teeth obsolescent; lower half of front with a weak median groove, and scattered, contiguous to subcontiguous, moderate-sized punctures; remainder of front and vertex with a few scattered, minute punctures; ocellocular distance only 1.33 times the postocellar distance, and 0.50 times the ocelloccipital distance; anterior ocellus slightly closer to occiput than to apices of antennal tubercles; head beneath with posterolateral angles rounded; distance between occiput and hypostomal carinae subequal to length of hypostomal area.

Pronotal disk strongly ridged anteriorly, immediately behind the ridge with a row of subcontiguous, moderately large punctures, elsewhere with very scattered, small punctures; scutum with 18–20 shallow pits of varying size on posterior two-thirds; scutellum similarly sculptured with about a dozen pits; mesopleural disk not produced anteriorly, its surface with the pits more scattered than in other species; dorsal propodeal surface rather densely punctate laterad of narrow cuneate space, the punctures small except posteriorly; posterior surface weakly ridged above, with moderate, subcontiguous pits.

Disk of first tergum strongly ridged anteriorly, behind the ridge a row of subcontiguous pits; last tergum polished, the apical fourth impunctate.

Inferior margin of hind femur right-angled at middle; hind tibia at apex without short, flattened setae.

MALE.—Length 11, forewing 7.5 mm. Color as in female except antenna entirely black, and wings more strongly infumated and with violaceous reflections.

Clypeal keel strong, present on basal three-fourths; clypeus with median lobe of apical margin narrowly rounded, teeth indistinct; distance from apex of frontal platform to occiput 0.92 times the width across eyes; front with contiguous and subcontiguous punctures on lower two-thirds and scattered punctures above; vertex with a few small punctures; ocellocular distance 1.57 times the postocellar distance, and 0.61 times the ocelloccipital distance; occipital

carina indistinct dorsally; median flagellar segments 1.25 times as long as wide.

Pronotal disk moderately ridged anteriorly, with scattered, medium-sized punctures; scutum and scutellum with large pits arranged as in female; mesopleural disk with pits of variable size except in center; metapleuron smooth above; median channel on dorsal propodeal surface with transverse ridges, laterad of this with pits of variable size; posterior surface ridged above, and with shallow contiguous pits.

First tergum moderately ridged anteriorly, behind the ridge with a row of confluent punctures; vestiture of sterna very sparse.

Genitalia with inner surface of squama and cuspis volsellaris not densely setose; apex of cuspis volsellaris digitate; lamina volsellaris with fine setae on ventral margin; paramere without tubercle on inner ventral surface halfway to apex.

HOLOTYPE.—♀, Mt. Maquiling, Luzon, Philippines, 50 meters elev., 7 October 1950, L. B. Uichanco (USNM Type No. 69649).

ALLOTYPE.—♂, Los Baños, Luzon, Philippines, 1917, F. X. Williams (BPBM).

PARATYPE.—♀, Mt. Maquiling, 19 January 1954, F. R. Candelaria (PBPI).

The female paratype is 11.5 mm long, its forewing 7.5 mm; the ocellocular distance is 1.83 times the postocellar distance and 0.58 times the ocelloccipital distance.

Hylomesa crassepunctata (Turner), new combination

Elis (*Mesa*) *crassepunctata* Turner, 1914, pp. 246–247.

The only specimen available for my study was the unique type in the British Museum. It was collected 8 July 1912 in Coimbatore, South India.

MALE.—Length 11, forewing 7 mm. Black, head red except ocellar triangle and nine apical flagellar segments; pronotum, tegula, and foreleg except coxa and trochanter also red; abdomen with weak blue reflections; apical half of forewing and apical third of hind wing strongly infumated and with bronze to blue reflections.

Clypeus with apical margin slightly thickened, the median teeth weaker than in *dimidiaticornis*, the frontal keel weak and present on basal two-thirds; distance from apex of frontal platform to occiput 0.89 times the head width including eyes; front with coarse, contiguous punctures and a weak median furrow extending half the distance from median ocellus to frontal platform; ocellocular distance 1.75 times the postocellar distance and subequal to ocelloccipital distance; occipital carina lacking dorsally; median flagellar segments about as broad as long; head shorter behind eyes than in *dimidiaticornis*.

Pronotal disk margined anteriorly by a weak ridge, the anterior half with punctures arranged contiguously in irregular transverse rows; scutum and scutellum with coarse, shallow, contiguous pits; mesopleural disk with very large, shallow, contiguous pits; metapleuron with only faint traces of ridges above; dorsal surface of propodeum with a narrow median channel crossed by a few, very weak rugae, laterad of this with coarse pits, the posterior margin with a strong transverse ridge anterior to which are some elongate pits; lateral surface with a few strong rugae, posteriorly with close, contiguous pits; posterior surface with smaller, shallow, contiguous pits.

First tergum with a strong transverse ridge anteriorly, behind which is a series of large, confluent punctures; none of sterna with patches of fine dense hair.

Genitalia not examined.

FEMALE.—Unknown.

***Hylomesa dimidiaticornis* (Bingham), new combination**

FIGURE 2; PLATE 1 (FIG. 5)

Myzine dimidiaticornis Bingham, 1896, p. 423; 1897, p. 68, fig. 11.—Turner, 1908a, p. 501; 1908b, p. 131; 1909, p. 480.

Plesia tricolor (Smith).—Margretti, 1892, in part, pp. 258–259.

Elis (Mesa) dimidiaticornis (Bingham).—Turner, 1912, pp. 720–721, pl. 81 (fig. 15); 1914, p. 247.

This species, known only from the male, is recognized easily because of the patches of velvety vestiture at the apices of the fifth and sixth sterna and because of the three transverse ridges on the pronotal disk anteriorly. There is some variation in color, the type from Kumaon, North India, having the head black except for ferruginous on the clypeus and parts of the front and antenna, whereas males from Mysore and Burma have the head almost entirely red.

MALE (redescription of type).—Length 13, forewing 10 mm. Head, thorax, and abdomen black, the latter with faint bluish reflections on terga; the following dull red: palpi, mandible, clypeus, small area laterad of antennal insertions, the frontal platform immediately above antennae, scape, pedicel, first four flagellar segments, and fifth segment beneath; wings clear on basal half to cross veins, forewing infumated on apical half with weak violaceous reflections, hind wing infumated on apical third.

Clypeus with apical margin slightly thickened and with two small, close teeth in middle, the median keel weak, present on basal two-thirds; distance from apex of frontal platform to occiput 0.91 times the head width across eyes; front with coarse contiguous punctures, confluent in irregular vertical rows, median furrow lacking; ocelloc-

ular distance 1.5 times the postocellar distance and about 0.6 times the ocelloccipital distance; occipital carina lacking on dorsum; median flagellar segments with length about 1.4 times the width.

Pronotum with sparse, rather small punctures, disk anteriorly with three weak, transverse rugae, the interspaces with coarser, subcontiguous punctures; scutum and scutellum with very coarse, shallow, contiguous pits; mesopleural disk with very large, shallow, contiguous to subcontiguous pits; metapleuron above with close, fine ridges that become coarser on anterior part of lateral propodeal surface; dorsal propodeal surface with a narrow, elongate cuneate depression along midline somewhat irregularly wrinkled, laterad of this with some scattered to contiguous large pits, posteriorly with a strong transverse ridge; posterior part of lateral surface with large, subcontiguous pits, posterior surface similarly sculptured.

First tergum with strong transverse ridge anteriorly, behind which is a series of large confluent pits; fifth sternum with a narrow transverse patch of fine, short velvety hair at apex; sixth sternum with a denser and larger patch of similar hair across posterior half of sclerite.

Genitalia with inner surface of squama and cuspis volsellaris densely setose; cuspis volsellaris digitate at apex; lamina volsellaris with fine setae only on ventral margin; paramere without tubercle on inner ventral surface halfway to apex.

SPECIMENS EXAMINED.—1 ♂; Kumaon, northern India, April 1891, Bingham (BMNH, the type). 3 ♂, Yakorubi near Karwar, Mysore Province, India, 28 April 1910, T. R. Bell, variously labeled "at dead tree" and "flying over dead tree" (BMNH, USNM). 2 ♂; Schwego Myo, Birmania, October 1885, Fea (MCSN, USNM; misdetermined as *tricolor* by Magretti).

The Yakorubi specimens are 13–14 mm long and agree with the type in all essential details except that all of the head is red except tip of mandible, hypostomal area, ocellar triangle, and last six flagellar segments. The Burma specimens are 10 mm long and have the head colored as in the series from Yakorubi except that the last eight flagellar segments are black; also, the pronotal ridges are weaker. All five specimens have stronger blue reflections on the abdomen than does the type; the head length is 0.85–0.88 times the width and the ocellocular distance is 1.5–1.7 times the postocellar and 0.6–0.7 times the ocelloccipital distance.

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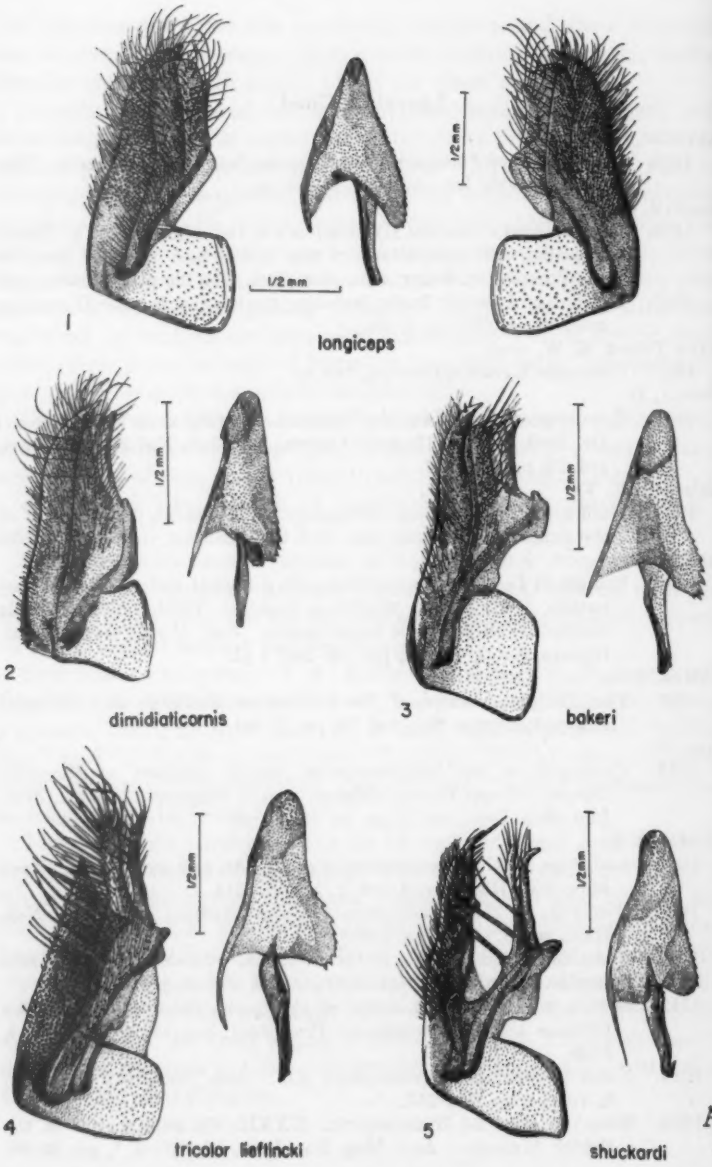

FIGURES 1–5.—Male genitalia, cardo omitted, *Hylomesa:* 1, internal aspect at left, exterior aspect at right, lateral aspect of aedeagus in center; 2–5, internal aspect at left, lateral aspect of aedeagus at right.

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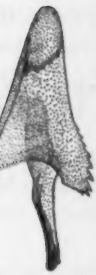

i

uckardi

t at left, exterior
t at left, lateral

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